Geoscience Education

Program Announcement

NSF 00-38

(Replaces NSF 99-52)

DIRECTORATE FOR GEOSCIENCES

Proposal Submission Deadline: April 10, 2000

NATIONAL SCIENCE FOUNDATION

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SUMMARY OF PROGRAM REQUIREMENTS

GENERAL INFORMATION

Program Name: Geoscience Education

Short Description/Synopsis of Program:

Element 1: Awards to Facilitate Geoscience Education (AFGE): Proposals may target any educational level: 1) graduate and postdoctoral education and training (outside the framework of normal NSF research grants), 2) undergraduate education, 3) elementary and secondary education, and 4) education outside the classroom. Awards made under this element are intended to facilitate the initiation or piloting of highly innovative educational activities that involve leading geoscience researchers where support may not otherwise be available.

Element 2: Application of Digital Libraries to Undergraduate Earth Systems Education**:** This element supports a process leading to the establishment of a national digital library which would support and promote high-quality undergraduate education in the geosciences, in particular innovative Earth systems curricula, associated archive data sets, and tools for handling real-time data. In addition to individual focused proposals, larger-scale collaborative proposals are invited that specifically seek to implement the recommendations of the community workshop Portal to the Future: A Digital Library for Earth System Education (http://www.dlese.org).

Cognizant Program Officer(s): Element 1: Michael Mayhew, Directorate for Geosciences, 703-306-1557, mmayhew@nsf.gov; Element 2: Dorothy Stout, Division of Undergraduate Education, Directorate for Education and Human Resources, 703-306-0445, dstout@nsf.gov.

Applicable Catalog of Federal Domestic Assistance (CFDA) No.: 47.050 - Geosciences

ELIGIBILITY

- Limitation on the categories of organizations that are eligible to submit proposals: **None**
- PI eligibility limitations: **None**
- Limitation on the number of proposals that may be submitted by an organization: **None**

AWARD INFORMATION

- Type of award anticipated: **Standard Grant**
- Number of awards anticipated in FY 00: **at least 20 awards**
- Amount of funds available: **Approximately $2 million will be available for this initiative in FY 2000**
- Anticipated date of award: **July 2000**

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

- **Proposal Preparation Instructions**
  - Letter of Intent requirements: **None**
  - Preproposal requirements: **None**
  - Proposal preparation instructions: **Standard NSF Grant Proposal Guide instructions**
  - Supplemental proposal preparation instructions: **None**
  - Deviations from standard (GPG) proposal preparation instructions: **None**
- **Budgetary Information**
  - Cost sharing/matching requirements: **None**
  - Indirect cost (F&A) limitations: **None**
  - Other budgetary limitations: **None**
- **FastLane Requirements**
  - FastLane proposal preparation requirements: **FastLane use optional**
  - FastLane point of contact: **Brian Dawson, 703-306-1555, x7039, bdawson@nsf.gov**
- **Deadline/Target Dates**
  - Full Proposal Deadline **5:00 PM, ET, April 10, 2000 (paper)**
    5:00 PM local time, April 10, 2000 (FastLane)

PROPOSAL REVIEW INFORMATION

- Merit Review Criteria: **Standard National Science Board approved criteria and other criteria detailed in the Program Announcement**

AWARD ADMINISTRATION INFORMATION

- Grant Award Conditions: **GC-1 or FDP III**
- Special grant conditions anticipated: **None anticipated**
- Special reporting requirements anticipated: **None**

OVERVIEW

In 1998, NSF's Directorate for Geosciences (GEO) conducted a special competition titled "Awards to Facilitate Geoscience Education" (AFGE). Proposals for research in geoscience education at all levels were invited through a program announcement (NSF 97-174).

In FY 99, that competition was repeated as the first of two elements of a larger grants program titled Geoscience Education. The second element is a special emphasis area titled "Application of Digital Libraries to Undergraduate Earth Systems Education." Review was conducted jointly by GEO and the Division of Undergraduate Education (DUE) of the Directorate for Education and Human Resources (EHR). The present program announcement is a reissuance of that for FY 99 modified to reflect significant developments within the community.

The educational digital library special emphasis—which is co-managed and jointly funded by GEO and DUE/EHR--represents an intersection of interests of the two NSF directorates, and will form an integral part of the overall FY 00 competition, as in FY 99. Both directorates seek to facilitate the involvement of leading researchers in efforts to improve the quality of geoscience education, thereby facilitating the effective integration of research and education.

PROGRAM DESCRIPTION

The two elements of the FY 00 program are described in this section.

Element 1: Awards to Facilitate Geoscience Education (AFGE)

An overview of the FY 98 and 99 AFGE competitions and abstracts of the successful awards are available via http://www.geo.nsf.gov. The comprehensive scope of AFGE and the emphasis on the integration of research and education follow the recommendations of the report of the Geoscience Education Working Group titled "*Geoscience Education: A Recommended Strategy"* (NSF 97-171). The report is also available at www.geo.nsf.gov or in hard copy by request to mmayhew@nsf.gov. Proposers are encouraged to consult the report, which the AFGE competition follows closely in scope and philosophy.

Proposals may target any educational level: 1) graduate and postdoctoral education and training (outside the framework of normal NSF research grants), 2) undergraduate education, 3) elementary and secondary education, and 4) education outside the classroom. Awards made under this element are intended to facilitate the initiation or piloting of **highly innovative** educational activities that involve leading geoscience researchers where support may not otherwise be available. In appropriate cases, awards could be made by supplementing active research grants. Examples drawn from the Geoscience Education Working Group report of possible activities that might be supported are:

- initiation of novel approaches to creating geoscience curricula, especially those involving new technologies,
- bringing cutting-edge research to the classroom or to the public,
- partnerships to implement the National Science Education Standards,
- technologies to reach small and community colleges more effectively,
- development of Web-based pedagogy,
- opportunities for teachers to work with scientists,
- workshops for training of geoscientists in educational issues,
- planning grants for interdisciplinary research on geoscience education,
- workshops to organize precollege data collection programs,
- partnering for initiation of museum exhibits,
- support for outreach activities of professional societies,
- distinguished geoscience education lecture series,
- initiation of state-based alliances of geoscience researchers, educators, and practitioners, and
- innovative use of university consortia networks for sharing of resources.

A major motivation of the present competition is to foster collaborations that integrate research and education. Projects that involve active linkages which serve this purpose, either currently in place or to be developed, are particularly encouraged. Experience has shown that major facilities such as ships, aircraft, museums or aquariums, analytical or computational facilities, national centers, and repositories of samples or data can be particularly successful as focal points for linking research and education; such use of these facilities is encouraged (though not a precondition for participation in the competition).

Review criteria specific to Element 1 are given in the section titled "Proposal Review Information."

Element 2: Application of Digital Libraries to Undergraduate Earth Systems Education

This element represents the intersection of two priority initiatives: 1) development of innovative Earth system science curricula at the undergraduate level and 2) development of digital libraries as a national resource in support of science, mathematics, engineering, and technology (SMET) education.

The foundation for support of a new emphasis on Earth system science education is a document resulting from a DUE-sponsored workshop, "Shaping the Future of Undergraduate Earth Science Education: Innovation and Change Using an Earth System Approach." Earth system science recognizes that the Earth is a complex system, and that to understand how the Earth works it is necessary to investigate the complex interactions of the components of the system. This means interactions among the atmosphere, hydrosphere, biosphere, solid Earth, cryosphere, and the solar-terrestrial environment, but also means the interaction of human activities with these components.

Applied to the quest for improving science education, the Earth system framework provides a rich context for inquiry-based learning, development of skills in applying modern communications technologies to analysis of large, real-world data sets, and nurturing of the critical thinking that underlies scientific investigations. The goal is a better-informed and scientifically more literate citizenry, able to critically analyze the multitude of problems facing society that are rooted in the natural world. As noted in the "Shaping" document, "[a]n integrated Earth system science approach, incorporating all disciplines in the Earth and space sciences, provides the knowledge base, methodologies, and global context that can make science accessible, relevant, and meaningful for all students."

The concept of a national digital library and associated networks is articulated in the document "Developing a Digital National Library for Undergraduate Science, Mathematics, Engineering, and Technology Education," National Academy Press, 1998. Proposers should also consult the digital libraries section of the DUE Web page (http://www.ehr.nsf.gov/EHR/DUE/start.htm). This Web-based library will be based on a distributed and open architecture, and will add value to the Web by increasing interoperability, reliability, and stability; by adding rich mechanisms to help users find appropriate and high-quality resources based on content, metadata, citations, and reviews; and by facilitating multidisciplinary perspectives and cooperation.

The Earth sciences are a particularly fertile area in which to develop a digital library. They are characterized by rich data and tools and by multidisciplinary work and leadership in exploiting new technologies. An educational element is envisioned which would support and promote high-quality undergraduate education in the geosciences, in particular innovative Earth systems curricula, associated archive data sets, and tools for handling real-time data. Geoscience data typically comes from a wide variety of sensors, and interoperability for multiple data sets is a desirable characteristic of digital library systems. This element of the library is expected to further the goal of greater integration of research and education by enabling students at all levels to have experience using research quality data and tools.

In addition to a number of focused individual efforts in digital library development, the FY 99 program funded a large consortium project to establish a prototype digital library for undergraduate education, the Geoscience Digital Library (GDL). See (http://www.gdl.ucar.edu). Consortium partners are the University Corporation for Atmospheric Research (lead institution), Incorporated Research Institutions for Seismology, the Keck Geology Consortium, Universities Space Research Association, the University of Colorado, and the University of California-San Diego (Alexandria Project). In addition, with support from the NSF Geoscience Education Program in partnership with NASA's Earth Science Enterprise Education Program, a major community workshop, "Portal to the Future: A Digital

Library for Earth System Education," was held with the objective of developing a strategic plan for such a national facility (http://www.dlese.org). A community organization, Digital Library for Earth System Education (DLESE), has formed a Steering Committee and associated working groups to guide the establishment of the library. GDL is an integral part of—and will provide an organizational core to—the community DLESE effort. It is expected that the momentum of these developments will be maintained through the vehicle of the present Program Announcement.

It is expected that support provided under Element 2 in FY 00 will lay the foundation for the beginning of full implementation of the Digital Library for Earth System Education in FY 01. NSF will assist in facilitating coordination among the funded projects so that collectively these projects will provide a comprehensive digital library for the improvement of undergraduate Earth science education.

Review criteria specific to Element 2 are given in the section titled "Proposal Review Information."

ELIGIBILITY INFORMATION

Proposals may be submitted by any organization eligible to submit proposals to NSF. Synergistic collaboration among researchers and collaboration or partnerships with industry or government laboratories is encouraged when appropriate. Due to the limited availability of funds, prospective applicants are strongly urged to contact [one of] the program officer[s] listed in this document to learn whether their proposed activities are appropriate for consideration in this competition or in any other NSF competition.

AWARD INFORMATION

Contingent on the availability of funds and on the quality of proposals received, it is anticipated that in FY 00 approximately $1M in each of the two elements of this announcement will be available ($2M total). Award amounts in the range $30K to $90K are anticipated for Element 1; award amounts in the range $30K to $1M are anticipated for Element 2. It is anticipated that at least 20 awards will result from this competition. Most projects funded via this competition will be for a duration of 12 to 18 months, although longer-term funding will be considered if the justification is compelling. Anticipated date of awards: July 2000.

PROPOSAL PREPARATION & SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions.

Proposals submitted in response to this program announcement should be prepared and submitted in accordance with the general guidelines contained in the *Grant Proposal Guide* (GPG), NSF 00-2. The complete text of the GPG (including electronic forms) is available electronically on the NSF Web site at: <http://www.nsf.gov/>. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone 301.947.2722 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program announcement number (NSF 00-38) in the program announcement/solicitation block on the NSF Form 1207, "*Cover Sheet for Proposal to the National Science Foundation*." Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

Investigators seeking support through this special competition are *strongly encouraged* to outline their plans and contact one of the following individuals well in advance of their submission of a formal proposal:

For Element 1:
Dr. Michael Mayhew
Directorate for Geosciences
mmayhew@nsf.gov, 703-306-1557

For Element 2:
Dr. Dorothy Stout
Division of Undergraduate Education
Directorate for Education and Human Resources
dstout@nsf.gov, 703-306-0445

The primary purpose for this preliminary contact is to enable investigators to learn whether their proposed activities are appropriate for consideration in this competition or in any other NSF competition.

B. Proposal Due Dates.

For paper submission of proposals, the paper copies of the proposal **MUST** be received by 5:00 PM, ET, April 10, 2000. Copies of the proposal must be made and submitted to NSF according to the normal procedures for paper proposals identified in the GPG.

For electronic submission of proposals, the proposal **MUST** be submitted by 5:00 PM, local time, April 10, 2000. Copies of the signed proposal cover sheet must be submitted in accordance with the instructions identified below.

Submission of Signed Cover Sheets. For proposals submitted electronically via FastLane, the signed proposal Cover Sheet (NSF Form 1207) should be forwarded to the following address and received by NSF by April 17, 2000.

National Science Foundation
DIS-FastLane Cover Sheet
4201 Wilson Blvd.
Arlington, VA 22230

A proposal may not be processed until the complete proposal (including signed Cover Sheet) has been received by NSF.

C. FastLane Requirements.

Proposers are encouraged to prepare and submit proposals using the NSF FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at http://www.fastlane.nsf.gov/a1/newstan.htm.

Submission of Signed Cover Sheets. For proposals submitted electronically, the signed paper copy of the proposal Cover Sheet (NSF Form 1207) should be forwarded to NSF within five working days following proposal submission in accordance with FastLane proposal preparation and submission instructions referenced above.

Paper Submission of Proposals. For paper submission of proposals, proposers should follow submission instructions contained in the NSF Grant Proposal Guide (GPG), (NSF 00-2) Section l.F.

PROPOSAL REVIEW INFORMATION

A. Merit Review Criteria.

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by program officers charged with the oversight

of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority serving institutions or adjacent disciplines to that principally addressed in the proposal.

Proposals will be reviewed against the following general merit review criteria established by the National Science Board. Following each criterion are potential considerations that the reviewer may employ in the evaluation. These are suggestions and not all will apply to any given proposal. Each reviewer will be asked to address only those that are relevant to the proposal and for which he/she is qualified to make judgments.

What is the intellectual merit of the proposed activity?

How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?

How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

PIs should address the following elements in their proposal to provide reviewers with the information necessary to respond fully to both NSF merit review criteria. NSF staff will give these factors careful consideration in making funding decisions.

Integration of Research and Education

One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learner perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities

Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- are essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

Additional Review Criteria Specific to This Program Announcement

Element 1:

Achieving full and effective integration of geoscience research and geoscience education requires that project teams have a combination of expertise in each of these areas. Projects are expected to be focused as well as to have potentially broad impact that may lead to innovative intellectual developments or that involve innovative partnerships. Funding provided through these awards should be catalytic; long-term funding will not be provided. Instead, these awards will provide start-up funding to enable projects to reach a level of maturity so that they can

compete successfully for long-term funding from other sources. These awards are intended to complement but not replicate activities supported by NSF's Directorate for Education and Human Resources.

Element 2:

Individual focused proposals are invited that seek to provide at least two of the following resources:

- collections or registries of research quality data and tools for their analysis,
- collections or registries of course and curriculum materials,
- mechanisms for faculty to find, combine, and adapt resources from a variety of sources,
- mechanisms for assessing the effectiveness of materials and practices, and
- mechanisms for disseminating best materials and practices.

It will be important for proposed work to go beyond simply collecting and cataloging information. It is expected that funded projects of this type will be able to add high-quality collections to the DLESE or contribute directly to the development of DLESE services.

In addition, larger-scale collaborative proposals are invited that specifically seek to implement the recommendations of the community workshop. Focus areas are those corresponding to the following workshop working groups:

- Governance/Management/Business Plan
- Collections
- Discovery
- Services/Collections/Support
- Intellectual Property
- Response to Community Needs
- Relationships Among Groups

Links to the working group reports can be found at (http://www.dlese.org).

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement will be reviewed by an expert panel, although written reviews by external experts may also be solicited.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. A program officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation. NSF will be able to tell applicants whether their proposals have been declined or recommended for funding within six months for 95 percent of proposals. The time interval begins on the proposal deadline or target date or from the date of receipt, if deadlines or target dates are not used by the program. The interval ends when the division director accepts the program officer's recommendation.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with an NSF program officer. A principal investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants Officer does so at its own risk.

AWARD ADMINISTRATION INFORMATION

A. Notification of the Award.

Notification of the award is made ***to the submitting organization*** by a Grants Officer in the Division of Grants and Agreements (DGA). Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program Division administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator.

B. Grant Award Conditions.

An NSF grant consists of: (1) the award letter, which includes any special provisions applicable to the grant and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable grant conditions, such as Grant General Conditions (NSF GC-1)* or Federal Demonstration Partnership Phase III (FDP) Terms and Conditions* and (5) any NSF brochure, program guide, announcement or other NSF issuance that may be incorporated by reference in the award letter. Electronic mail notification is the preferred way to transmit NSF grants to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

* These documents may be accessed electronically on NSF's Web site at: <http://www.nsf.gov/>. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone 301.947.2722 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, (NSF 95-26) available electronically on the NSF Web site. The GPM also is available in paper copy by subscription from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. The GPM may be ordered through the GPO Web site at: <http://www.gpo.gov>. The telephone number at GPO for subscription information is 202.512.1800.

C. Reporting Requirements.

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after expiration of a grant, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented a new electronic project reporting system, available through FastLane, which permits electronic submission and updating of project reports, including information on: project participants (individual and organizational); activities and findings; publications; and, other specific products and contributions. Reports will continue to be required annually and after the expiration of the grant, but PIs will not need to re-enter information previously provided, either with the proposal or in earlier updates using the electronic system.

Effective October 1, 1999, PIs are required to use the new reporting system for submission of annual and final project reports.

D. New Awardee Information.

If the submitting organization has never received an NSF award, it is recommended that the organization's appropriate administrative officials become familiar with the policies and procedures in the NSF *Grant Policy Manual*

which are applicable to most NSF awards. The "Prospective New Awardee Guide" (NSF 99-78) includes information on: Administrative and Management Information; Accounting System Requirements and Auditing Information; and Payments to Organizations with NSF Awards. This information will assist an organization in preparing documents that NSF requires to conduct administrative and financial reviews of an organization. The guide also serves as a means of highlighting the accountability requirements associated with Federal awards. This document is available electronically on NSF's Web site at: <http://www.nsf.gov/cgi-bin/getpub?nsf9978>.

CONTACTS FOR ADDITIONAL INFORMATION

General inquiries should be made to: Element 1: Michael Mayhew, Directorate for Geosciences, 703-306-1557, mmayhew@nsf.gov; Element 2: Dorothy Stout, Division of Undergraduate Education, Directorate for Education and Human Resources, 703-306-0445, dstout@nsf.gov. For questions related to use of FastLane, contact Brian Dawson, 703-306-1555 x7039, bdawson@nsf.gov.

OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding for research and education in science, mathematics, and engineering. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter. Many NSF programs offer announcements concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices listed in Appendix A of the GPG. Any changes in NSF's fiscal year programs occurring after press time for the Guide to Programs will be announced in the NSF Bulletin, available monthly (except July and August), and in individual program announcements. The Bulletin is available electronically via the NSF Web Site at http://www.nsf.gov. The direct URL for recent issues of the Bulletin is http://www.nsf.gov/od/lpa/news/publicat/bulletin/bulletin.htm Subscribers can also sign up for NSF's Custom News Service to find out what funding opportunities are available.

The geoscience community is specifically encouraged to explore the following sources of support within NSF:

Research Experiences for Undergraduates (REU)

The long-standing NSF-wide Research Experiences for Undergraduates (REU) Program has been an effective vehicle for the integration of research and education by supporting the substantive involvement of undergraduate students in research projects. As part of its effort to enhance the quality of geoscience education, GEO is encouraging submission of proposals in this area. These REU Sites projects provide opportunities for small groups of undergraduate students to work on specially formulated research projects. In providing this REU Site funding, GEO is especially interested in supporting innovative multidisciplinary projects, increasing the involvement of K-12 teachers, exploring innovative educational approaches, and significantly increasing the participation of minority students in the geosciences. GEO also is interested in supporting the innovative involvement of undergraduates as members of research teams through the use of REU supplements to existing awards.

REU proposals directed to GEO will continue to be reviewed in the GEO divisions as in the past. *Proposal submission should follow the REU guidelines, as outlined in the REU program announcement (NSF 96-102).* More information about the REU Program is available from the NSF Web site (http://www.nsf.gov/home/crssprgm/reu/start.htm).

Related Opportunities for Support from NSF's Directorate for Education and Human Resources (EHR)

Division of Undergraduate Education (DUE). This Division supports curriculum and faculty development at the undergraduate level through the following programs:

- Advanced Technological Education,
- Course, Curriculum, and Laboratory Improvement, and
- NSF Computer Science, Engineering, and Mathematics Scholarship Program

These programs are described in the DUE program announcement and guidelines (NSF 99-53) and at the DUE Web site (http://www.ehr.nsf.gov/EHR/DUE/start.htm).

DUE, GEO, the Keck Geology Consortium, and the American Geophysical Union (AGU) co-sponsored a workshop on the future of geoscience education titled "Shaping the Future of Undergraduate Education: Innovation and Change Using an Earth System Approach." A printed copy of the workshop report is available from Frank Watt Ireton at the AGU (fireton@kosmos.agu.org). The report also can be accessed from the AGU Web site (http://earth.agu.org/sci-soc/spheres/).

Division of Elementary, Secondary, and Informal Education (ESIE). This Division offers the following programs to promote student and teacher development at the K-12 level and public science literacy through activities outside the classroom:

- Informal Science Education,
- Instructional Materials Development,
- Teacher Enhancement, and
- Advanced Technological Education.

These programs are described in the ESIE program announcement and guidelines (NSF 99-92) and at the ESIE Web site (http://www.ehr.nsf.gov/EHR/ESIE/pubs.html).

The Informal Science Education Program operates a program to competitively provide supplements of up to $50,000 to active NSF research grants "to assist in the broader dissemination of current research results and to promote science literacy for the general public in an out-of-school setting." The announcement of opportunity describing this activity is “Informal Science Education: Supplements to Active Research Awards” (NSF 97-70). Information is also available from the ESIE Web site.

Division of Research, Evaluation, and Communication (REC). The REC program titled Research on Education, Policy, and Practice (REPP) ties together several predecessor programs. The scope of the REPP program is broad and fundamental in nature: to bring new intellectual and technological resources to bear on the problems of educational reform at all levels. REPP seeks to support high-quality, high-risk/high-payoff, long-term opportunities. Information is available at the REC Web site (http://www.ehr.nsf.gov/ehr/rec/default.htm).

Some Related NSF-Wide Programs

Integrative Graduate Education and Research Training Program (IGERT). This program replaces the Graduate Research Traineeship (GRT) and Research Training Group (RTG) Programs. It supports innovative multidisciplinary graduate programs which integrate education and research, and which provide graduate students with access to state-of-the-art instrumentation and experience in both academic and non-academic research settings. Its objective is to enhance the broad competency and flexibility of doctoral professionals as part of an increasingly dynamic workforce. The program announcement is NSF 98-96; information is also available at http://www.nsf.gov/home/crssprgm/igert/start.htm

Faculty Early-Career Development Program (CAREER). This program supports new faculty in launching a career which balances educational and research pursuits and seeks to fully integrate the two. The program announcement is NSF 99-110; additional information is available from the NSF Web site (http://www.nsf.gov/home/crssprgm/career/start.htm).

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Grantees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities, and persons with disabilities to compete fully in its programs. In accordance with federal statutes, regulations, and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement or contact the program coordinator at (703) 306-1636.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation regarding NSF programs, employment, or general information. TDD may be accessed at (703) 306-0090 or through FIRS on 1-800-877-8339.

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

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YEAR 2000 REMINDER

In accordance with Important Notice No. 120 dated June 27, 1997, Subject: Year 2000 Computer Problem, NSF awardees are reminded of their responsibility to take appropriate actions to ensure that the NSF activity being supported is not adversely affected by the Year 2000 problem. Potentially affected items include: computer systems, databases, and equipment. The National Science Foundation should be notified if an awardee concludes that the Year 2000 will have a significant impact on its ability to carry out an NSF funded activity. Information concerning Year 2000 activities can be found on the NSF web site at http://www.nsf.gov/oirm/y2k/start.htm .

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Catalogue of Federal Domestic Assistance (CFDA) No.: 47.050 - Geosciences
OMB No.: 3145-0058

NSF 00-38
(Replaces NSF 99-44)